

THE GIANT *GENLISEA UNCINATA*
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Keywords: travelogue: Brazil, *Genlisea uncinata*—observations: *Genlisea uncinata*.

Genlisea uncinata P. Taylor & Fromm-Trinta was described as a new species in 1983, based on a single collection of a few dried inflorescences. These had been collected three years previously on a faraway peak of the Serra do Sincora, which is part of the Chapada Diamantina, a series of sandstone highlands in the state of Bahia, north-eastern Brazil.

That collection was the only proof that *G. uncinata* existed, so I decided to go look for it. Keen as I am on finding rare species of carnivorous plants in the wild, *G. uncinata* was one hell of a plateful! After all, here was a mysterious plant that had only been collected once upon a time from a poorly documented location. I did not know what kind of habitats it grew in. Was it rare? Could it be found all year long? Is it an annual or a perennial? But if I found it, what a boon it would be! It had never been introduced into cultivation, and promised to be a large version of the already very attractive *G. violacea* St. Hil. Furthermore, it came from the carnivorous plant-rich Chapada Diamantina, so even if I were unsuccessful in my search for *G. uncinata*, I would no doubt be kept busy with numerous other interesting carnivorous plant species.

I had very little information to rely upon. It was reported to grow between 1300 and 1500m altitude, somewhere northwest of a small village called Mucugê. I also knew it was somewhat similar to *G. violacea*, but with robust inflorescences 23-40cm high and purplish-blue flowers with a hooked spur (P. Taylor & Fromm-Trinta, 1983).

In July 1995 I found the time, gathered the courage, and jumped on a bus to Bahia, not yet sure how to actually get to the village of Mucugê—that would be decided along the way. Nearly two days and a few buses later, I finally arrived in Mucugê, a small colonial-style town. It was surrounded by breathtaking mountains, covered in the 'campo rupestre' vegetation typical of Brazilian highlands. This consists of mostly herbaceous plants (lots of grasses) as well as scattered short bushes and trees, growing in sandy/rocky soils on Precambrian sandstone highlands. It is very similar to the Venezuelan tepui vegetation, and superficially even to the South African fynbos. Typical plant families of campos rupestres include: Velloziaceae, Eriocaulaceae, Asteraceae, Orchidaceae, Bromeliaceae, Poaceae, Melastomataceae, Fabaceae, Cyperaceae, Myrtaceae, Xyridaceae, Rubiaceae, Euphorbiaceae, Malpighiaceae, and of course Droseraceae (*Drosera*) and Lentibulariaceae (*Genlisea* and *Utricularia*) (Stannard, 1995). The biodiversity of the flora of campos rupestres is truly fantastic, and the incredible number of micro-habitats results in occasional oddities such as cacti growing only a meter apart from *Drosera*!

Fortunately campo rupestre vegetation is such that you may usually hike in whatever direction is desired. But where was I to start looking? The location data I had for *G. uncinata* was vague, however I optimistically hoped that once in Mucugê I would find this species growing somewhere in the area (if not everywhere!). For two days I hiked all around, finding interesting carnivorous plants like *Genlisea aurea* St. Hil., *Drosera montana* St. Hil. var. *tomentosa* (St. Hil.) Diels, *Utricularia flaccida* DC., and a beautiful white form of *U. blanchetti* DC. which grew everywhere—like grass!—but not a single specimen of *G. uncinata*.

My explorations were in the middle of the dry season, while the type material of

G. uncinata had been collected in flower in March. Was I too late in the season to catch it alive? If the supposedly closely-related *G. violacea* was a good reference, there was a big chance I had been trekking for two days through areas that during wetter times of the year were full of *G. uncinata*. Perhaps, like *G. violacea*, *G. uncinata* survived during the dry season only as seed, and might be found during the dry season only in a few very wet habitats?

Considering that I wanted to explore two other areas of the Chapada Diamantina on that trip and that my winter vacations from university were limited, I decided that my third day at Mucugê would be my last. If I did not find *G. uncinata*, then I would just have to leave it for some future trip during a summer wet season. (I had been forced to do that many times in the past while searching for other rare species.)

I set out early in my last morning at Mucugê, towards a very high mountain I hoped was the right one. It was a very long hike indeed, but it was my last hope. After about five hours of bush-whacking through bush (most of it up a very steep mountain-side), I was exhausted, burning from the sun and heat, and dripping with sweat. I was getting close to the top of what was the highest mountain in the area, but still no *G. uncinata*. I was considering giving up and returning to Mucugê so I would arrive well before sunset. Or should I hike around for another half hour or so? At least I could reach the summit where I would have a nice view as a reward...

As I was trying to decide what to do, I crossed an area with tall grasses growing in black peaty/sandy soil, and suddenly there it was—*G. uncinata* in flower! Speechless, I dropped to my knees. I could not believe what I was seeing—it was much larger than I had expected. Looking around, I began finding more and more inflorescences, up to 80cm in length—double what Taylor and Fromm-Trinta had described! And most interesting, they were also thick, even succulent. Some were as thick at the base as a pencil! All the effort put into finding *G. uncinata* had more than payed off.

It is impossible to put to words the wonderful feeling I had when I found those magnificently gigantic plants. There I was, alone on top of an isolated mountain in the middle of nowhere, surrounded by beautiful scenery, a cool breeze filling my nostrils with greenery and giving me shivers as it blew against my sweaty shirt stuck to my

torso. But I was oblivious to all this. I forgot all the scratches and bruises from the past three days. I kneeled on the ground, focused on the *G. uncinata*, my hands raised to my dishevelled hair and sweaty red face, my mouth open in awe, wordless at first, but then breaking the absolute silence of the mountain with shouts and laughter as I celebrated my fantastic discovery. That was surely among the top five most memorable days in all of my carnivorous plant experience!

In time I calmed down enough and caught my breath to concentrate on the task ahead. First thing: pictures. Second: herbarium specimens (see Figure 1). Third: collect seeds and live plants. Last of all: explore the surrounding areas for other *G. uncinata* populations.

I waded back and forth through the high grasses, finding more and more *G. uncinata*, and I observed that each of the thick inflorescences



Figure 1: The exuberant author with his prized *G. uncinata* discovery near Mucugê.

had up to four open purplish-blue flowers. Although the *G. uncinata* plants are huge, the flowers are not much larger than those of *G. violacea* (measuring nearly 1.5 cm from the tip of the lower to the tip of the upper lip). The characteristic hooked spurs are around 1cm long (see Front Cover). The pedicels are very short, 6-8.5mm long and become reflexed when in fruit, as also occurs with *G. violacea* and *G. lobata*.

I soon noticed that the yellow patch at the base of the lower lip of several *G. uncinata* flowers was neatly eaten out, leaving a small gap in the corolla. I had already observed this at several other locations with *G. violacea* and a few purplish-flowered *Utricularia* species. I wonder if there is some bug that fancies the taste of the yellow pigment in Lentibulariaceae flowers! (I have seen partially or completely eaten all-yellow *Utricularia* and *Genlisea* flowers countless times.)

The spatulate-obovate leaves of *G. uncinata* were curiously very thick. Furthermore, they were usually few in number or even absent. I suspect that the long succulent inflorescences may actually be the main photosynthetic organ—at least during flowering season. I also noticed that both the leaves and flower scapes originated from a point 1-5 cm below ground. This may be an adaptation to protect the meristem from fires, but is surely also important to help support the heavy peduncles and keep them from breaking off with the wind.

There were still more surprises ahead as I stuck my pocketknife into the moist black soil to dig out a specimen. The block of soil was white underneath. No, the soil had not changed color; it had simply been substituted by an incredibly dense mass of the largest *Genlisea* traps I had ever seen! Some traps were so thick that I could open up the hollow section above the 'arms' with my fingernail, slicing the tube just like a *Sarracenia* leaf! A deep breath, try to relax, and count to ten: one, two, three....

Unfortunately I was unprepared for this amazing surprise and my small pocketknife was only capable of digging down ten centimeters or so. Although I dug up several *G. uncinata* specimens, the long traps were always severed at a point above the division into the two corkscrew arms. I could only wonder what a spectacle *G. uncinata* would be if cultivated like that *Genlisea* grown by Geoff Wong, pictured on the cover of Carnivorous Plant Newsletter 24:2! I have no doubt the traps of *G. uncinata* can grow longer than 20cm and are only rivalled in robustness by those of *G. guianensis* N.E.Br., a species which I recently saw in the wild at the Venezuelan Gran Sabana and in northern Minas Gerais state, Brazil. As with most *Genlisea* species, *G. uncinata* produces two kinds of traps: long ones that grow straight down into the soil and short ones that grow more horizontally beneath the surface (see Studnicka, 1996).

I discovered several other nearby *G. uncinata* populations, always growing in moist black sandy/peaty soil with tall grasses. Nevertheless, with all those *G. uncinata* inflorescences I found no ripe seeds. The scapes were just too young. Although Taylor and Fromm-Trinta claim that as many as 21 flowers may be produced on each scape of *G. uncinata*, I am sure larger branching inflorescences may produce double this amount.

The size and robustness of the *G. uncinata* inflorescences, and the fact that the soil they grew in was still humid in the middle of the dry season, quickly convinced me that *G. uncinata* was not an annual (as *G. violacea* usually is in the wild). As I recalled how the mountaintop where they grew had been covered in heavy clouds early in the morning and late in the afternoon on each of the days I spent at Mucugê, it became obvious that condensation was the main source of water for *G. uncinata* (at least during the dry season).

Thinking of those clouds, I remembered that I had better start the long trek back down to Mucugê. It was getting late, and hiking at night with fog in trailless rocky terrain is not my idea of a good time, especially because of the poisonous snakes that emerge at sunset! Nonetheless, it was hard to drag myself away from the summit of the Serra do Sincorá. And right before leaving, I stumbled on yet another surprising discovery. Growing in small cracks of sandstone dripping with water, I refound a yet-undescribed species of *Genlisea*. I had originally discovered it near the Fumaça Falls (the

second highest waterfall in Brazil), located further north along the Chapada Diamantina. It is similar to *G. violacea* and has pink-purple flowers with a curious wide gap between the upper and lower corolla lips. I had only seen this *G. sp.* once before, so I was really happy to see it again on the Serra do Sincorá. Unfortunately, like at the Fumaça Falls, I could only find a frustratingly small amount of plants—not enough for an herbarium specimen, and thus not enough to formally describe this new taxon yet. I'll have to do a bit more hunting for this species on the Chapada Diamantina in the future.

As you can imagine, I spent more time than I had to spare on that mountaintop, studying *G. uncinata* and *G. sp.*, so I had to run back to Mucugê, slipping and sliding down the mountainside full of loose rubble. Luckily I arrived at the base of the mountain before it got too dark, and it was easy, even in the dark, to follow a road for the last few km back to town.

My next stop on the Chapada Diamantina was another small town called Catolés. This town sits at the base of the Morro do Barbado which, reaching slightly over 2000m in altitude, is the highest mountain in the state of Bahia. I had never been there before, but knew from herbarium specimens that there were lots of interesting carnivorous plants in the area. The big problem was getting to Catolés: it is so isolated that not even buses travelled there! I had to catch two rides along bumpy dirt roads, all the while carefully cradling, like a loving father, my bagfull of *G. uncinata* plants with their huge and succulently brittle inflorescences.

Catolés turned out to be one of the richest carnivorous plant areas I have ever visited, so I will not even begin to describe the nearly thirty species found there! Yes, I also found *G. uncinata* on the Morro do Barbado, where it was actually quite common between 1600-1950m of altitude, in habitats similar to those I had seen at the type location on the Serra do Sincorá. Contrary to the situation at Serra do Sincorá, this time I found plenty of ripe seeds to collect.

This new collection from the Morro do Barbado—only the second known for *G. uncinata*—suggests that it may actually be widely distributed throughout the Chapada Diamantina. Maybe botanists have simply been too lazy to hike up and explore the mountaintops! In fact, I subsequently found three new species of *Genlisea* further south in the state of Minas Gerais. These are more or less intermediate in size and robustness between *G. uncinata* and *G. violacea*. One of these is especially similar to *G. uncinata* but lacks the hooked spurs.

In conclusion, I am very happy to write that *G. uncinata* has now been successfully introduced into cultivation around the world (including tissue culture), through seeds collected on this trip to Mucugê and Catolés, and also through seeds obtained from cultivation in São Paulo. Although Murphy's Law stipulates that species which are morphologically spectacular are also always frustratingly difficult or slow to grow, *G. uncinata* is an exception. It is surprisingly easy to grow and is not at all picky like most other species of *Genlisea*. Specimens of *G. uncinata* grown by my friend Fábio Pinheiro here in São Paulo flourished and produced enormous, highly branched flower scapes over 1.2m in length!

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